

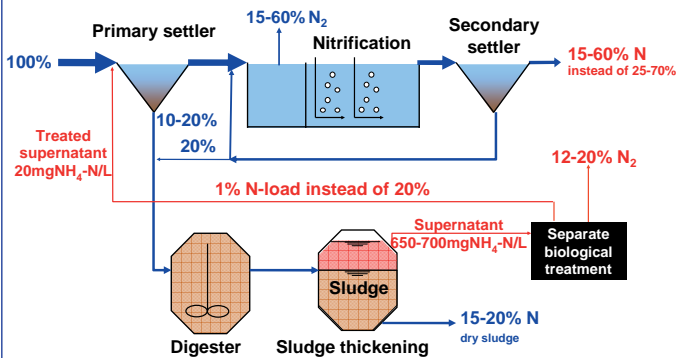
Biological N-Removal from Digester Liquid with Partial Nitrification and Anaerobic Ammonia Oxidation (PNAA)

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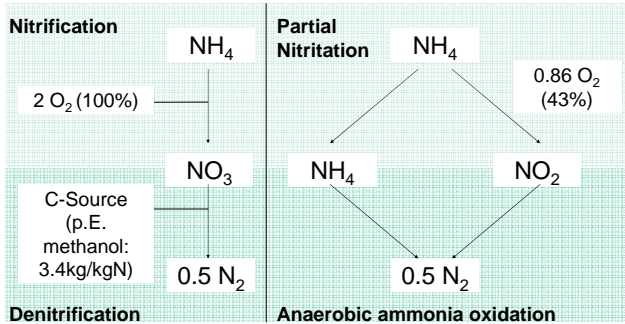
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Aim: Reduction of the N-load in the effluent of the WWTP

How?: Separate biological treatment of the digester liquid before recycle into the primary clarifier

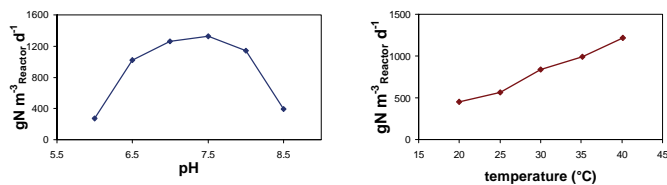


Process: Conventional with nitrification/denitrification or partial nitrification & anaerobic ammonia oxidation (PNAA)

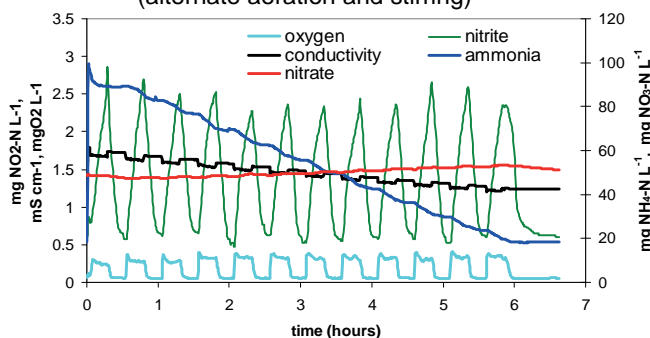


PNAA advantages: - Saving 57% aeration energy
- No addition of organic carbon (methanol)
- depending on temperature and pH

Activity:

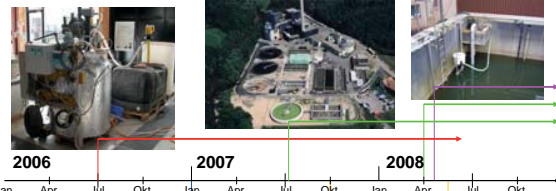


Operation: - Intermittent aeration (first variant) (alternate aeration and stirring)

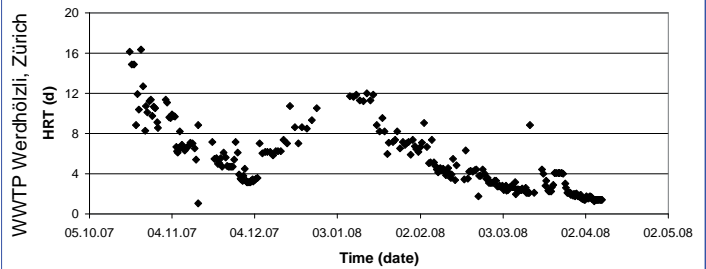


Scale up: From a 400L to a 1400m³ reactor

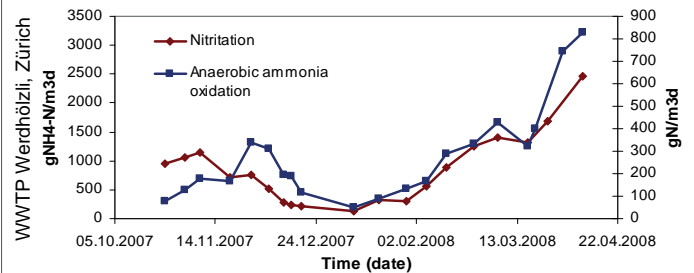
0.4m³ reactor volume Eawag experimental hall 2 x 300m³ reactor volume WWTP St.Gallen Au 180m³ reactor volume WWTP Niederglatt



Start up: - hydraulic retention time (HRT)



Sludge activity measured in batch tests



- Continuous aeration (second variant) (simultaneous nitrification and anammox)

